

**EVALUATION PLAN FOR THE
I-95 CC ATIS (CORRIDOR- TRAVTIPS)
PROGRAM**

**Prepared For: I-95 CC ATIS Committee
Federal Highway Administration**

**Prepared By: SAIC
Daniel Consultants, Inc.**

March, 1999

Table of Contents

<u>Description</u>	<u>Page</u>
EXECUTIVE SUMMARY	ES-I
INTRODUCTION	1
I. ATIS EVALUATION GOALS AND OBJECTIVES	1
II. PLANNED ATIS PROGRAM	3
TravTIPS Architecture	3
Service Descriptions	4
III. PRELIMINARY EVALUATION STRATEGY	7
Preliminary Strategy	7
IV. EVALUATION/TEST PLANS	16
Case Study (Public-Private Partnership)	16
Cost/Sustainability Review	17
Market Data	17
System Performance Logs	18
Surveys- Users	18
Surveys/Interviews- Participating Agencies	19
Focus Groups	20
V. MANAGEMENT PLAN	21
Levels of Responsibility	21
Reports	21
Schedule	22

List of Figures

<u>Title</u>	<u>Page</u>
1. TravTIPS Communications Architecture for I-95 CC ATIS	5
2. TravTIPS Logical Architecture for I-95 CC ATIS	6

List of Tables

<u>Title</u>	<u>Page</u>
1. Preliminary Evaluation Strategy and Hypotheses	8

EXECUTIVE SUMMARY

The Boston-to-New York travel corridor is one of the busiest travel corridors in the country and, typical of such developed areas, is experiencing congestion and safety problems and other travel-related inefficiencies along its transportation systems. Currently, transportation agencies along the Corridor collect static and real-time transportation and travel information for their individual areas or regions. Access to this information on a corridor-wide basis is limited. As a result, the I-95 Corridor Coalition has sponsored a program, known as the I-95 CC ATIS project, to develop and maintain corridor-wide traveler information along this Corridor.

The I-95 CC ATIS project (FOT #4) is a field operational test to collect, process, and disseminate traveler information to interregional travelers corridor-wide between the New York and Boston regions along the I-95 Northeast Corridor. The overall purpose of the I-95 CC ATIS program is to enhance the quality, quantity, and availability of timely, accurate traffic, travel, schedule, and other information among transportation operations and management agencies and authorities, to the media, and to the public. This program will permit more effective and coordinated management of transportation services throughout the Region and more informed travelers who can then make better travel decisions.

ATIS EVALUATION GOALS AND OBJECTIVES

- The I-95 CC ATIS Committee and the SAIC Team met and discussed the I-95 CC ATIS program and outlined a set of evaluation goals and objectives. These goals and objectives were derived from the initial operational test goals and objectives. The following evaluation goals and objectives were outlined.

Goal #1: To Define the Marketability and Sustainability of the ATIS Program on a Regional Basis.

- To identify the marketability and sustainability of the ATIS program overall and by device type, user, and free vs. fee-based service.
- To define the benefits of the ATIS program to the ATIS industry/transportation community.
- To define the benefits of the ATIS program to the users.
- To define the perceived benefits of the ATIS program to the participating agencies.
- To improve transportation service by the participating agencies using the information from the service.
- To improve customer satisfaction by the participating agencies in the processes of providing to and obtaining information from the services.
- To document or estimate the relevant costs associated with the ATIS program.

Goal #2: To enhance the understanding of the process to develop and maintain public-private partnerships.

- To document the steps and processes, institutional issues, successes and failures, and a model for public-private and private-private partnerships during the development of the ATIS program.
- To refine the public-private partnership model.

Goal #3: To utilize the traveler information to make informed travel decisions.

- To guide travelers to more efficient modes of travel.
- To guide travelers to more efficient travel paths between origin and destination.

- To guide travelers to more efficient time periods to conduct specific trips.
- To increase flexibility in travel options by travelers.
- To define and enhance the value/worth of the traveler information by users, device type/source, and free vs. fee-based services.

Goal #4: To provide useful traffic and travel-related information to interregional travelers and other users within the study area.

- To provide reliable, timely, comprehensive, user-friendly multi-modal traveler information to its users (by type of device and free vs. fee-based service).

The purpose of the proposed evaluation plan will be to ensure that an assessment of the effectiveness of the ATIS program in achieving these goals and objectives is achieved within the resource limits of the evaluation activity.

PLANNED ATIS PROGRAM

The I-95 CC ATIS program is aimed at achieving benefits for both the public and private sector. It will provide users with both static and dynamic information for all major modes of transportation available along the Corridor. For public sector agency partners (Massachusetts Highway Department (MHD), Massachusetts Turnpike Authority (MTA), and the Connecticut Department of Transportation), the agencies will have the ability to receive fused, expanded, multi-modal, travel information to support interagency and interregional traffic and incident management. This information will be provided in exchange for providing access to their agencies' traffic data (e.g. incident data; volume, speed, and occupancy information; construction and maintenance activities; transit schedule, fare, and stop information). In addition, the TravTIPS network and workstation software will provide a whiteboard and E-mail capability to support interagency coordination.

For the private sector, the ATIS program will provide at least three primary services for the Region. The services are:

- Multi-mode travel information on a WWW page disseminated via the Internet (scheduled for beta-test in January, 1999);
- Multi-mode travel information and trip planning services with limited personalization (and fee-related) disseminated via kiosks in South Station (Boston) and Penn Station (New York)- (planned for early 1999); and
- Multi-mode travel information and trip planning services with full personalization disseminated via the Internet to at least one Corporate Customer (planned for 1999).

Private sources, such as: ETAK, METRO Networks, AMTRAK, and ARINC will supplement and provide traveler information on the major modes of transportation (e.g. rail and airline travel) as well as congestion and incident data where available. The services will be available with any commercially available web browser and an Internet connection from the home, office, and, potentially, public facilities such as libraries and schools. Added services will be provided in the future based on the economic viability of the services to both the public and private partners.

Service Descriptions

The ATIS program being developed and the plans for information dissemination include:

- **Internet:** ARINC will host single access service for multi-mode local and regional travel information for the Boston and New York areas and major highways between the two cities. The TravTIPS web page will present near-real-time assessments of traveler conditions via color-coded maps. Transit schedules and fares, rail schedules and fares, and flight status and gate assignments will be available via the Internet. Dynamic traffic predictions will be added as a service enhancement during the second software build.
- **Radio/ Interactive TV Broadcast:** This dissemination is a continuation of ETAK's current radio broadcast and cable TV business. ETAK and Metro Networks, key project private partners, will have access to more complete travel information for the region, enhancing the level of service and information quality to I-95 consumers. Additionally, Metro Networks and ETAK will launch an interactive cable TV channel within the New York and Boston metropolitan areas.
- **Kiosks:** Kiosk stations, two kiosks per station, are proposed to be installed at South Station (Boston) and at Penn Station (New York City). These stations will provide single access to multi-mode traveler information including metro, regional, and interregional traffic, transit routes, station locations and schedules, flight information, and rail specific to the New York and Boston metropolitan areas. The kiosks will also provide, for a fee, access to the Internet for key traveler information beyond the project's basic web page.
- **Intranet/ Corporate Services:** A personalized traveler information service (for fee) to corporate customers via the intranet will be provided. Personalized features will include: specific mode information inquiries, traveler parameter files, and exception messaging. All aspects of the Internet web page will be available to the corporate user as well. A specific corporate partner will participate in this service.
- **Integrated Transportation - Making Service:** This service supports intra- and interregional traffic management and provides the capability for interagency and interregional collaboration between the MHD TOC, the MTA Integrated Project Control System, and the Connecticut DOT TOC. The service will support a field test of virtual traffic information control center (TICC) concept.

The scope of the program is intended to be dynamic as the needs of the Corridor and the "attractiveness" of traveler information services expands. Major enhancements, as the ATIS program expands, are envisioned.

PRELIMINARY EVALUATION STRATEGY

The preliminary strategy, organized by evaluation goal and objective, is displayed in Table I of the main body of the Report. This strategy was developed as a result of several meetings and discussions among the I-95 ATIS Committee and SAIC Evaluation Team members. Each evaluation/FGM study includes the list of objectives, hypotheses, and measures of effectiveness. For each hypothesis and measure, the proposed data sources and data requirements and analysis methods are outlined. The studies are proposed for conduct at several stages in the evaluation program to evaluate the specific programs under several levels of maturity and development. In addition, since specific programs are planned for implementation at different times (e.g. beta form of WWW page planned for January, 1999 while the kiosk program is proposed for early, 1999) during the overall project, the timing of the studies for specific programs will vary during the study period.

Test Plans

The evaluation strategy highlights the evaluation approach to meet the evaluation goals and objectives. Within this section, details are provided on the individual test plans planned for conduct in this effort. They are organized by specific study or issue planned for study.

Case Study (Public-Private Partnership)

- **Goal/Hypotheses Tested:** Goals 1 and 2 of the evaluation goals is directed towards defining an effective public-private partnership (PP/P) model for ATIS projects.
- **Target Group:** System developers (ARINC), I-95 CC, Participating transportation agencies supplying transportation information, and Project Partners (e.g. ISPs)
- **When:** Documentation of project activities from project start through end of 24-month field operational test period
- **How:** Documentation obtained from several sources:
 - Review of past and ongoing meeting minutes (SAIC)
 - Documentation of past key issues (ARINC)
 - Active participation in current and future meetings and documentation of key issues (SAIC w/ ARINC)
 - Surveys/interviews with project participants/target groups (SAIC)
 - Review of Business Model and updates/revisions (SAIC w/ ARINC)
- **Survey/Study Tool:** Information obtained from the following sources:
 - Initial Business Model proposed and used by system developer (ARINC)
 - Updates/revisions to Model (per ARINC input)
 - Documentation of key issues- past and current (ARINC and SAIC)
 - Survey/interview of system developer (ARINC), participating agencies, and partners on the documented successes and failures of the model and its implementation during the project, the marketability of the ATIS, and the sustainability of the ATIS
- **Data Analysis:** Documentation of findings and survey inputs on Public-Private Partnership issues (ARINC/SAIC)
- **Schedule:** Conduct ongoing activities throughout study period, particularly following key enhancements to the system

Cost/Sustainability Review

- **Goal/Hypotheses Tested:** Goal 1 of the evaluation objectives highlights the cost-related, marketability and sustainability objectives.
- **Target Group:** System developers (ARINC), I-95 CC, Participating transportation agencies supplying transportation information, and Project Partners (e.g. ISPs)
- **When:** Documentation of project costs and revenues (and sources) from project start through end of 24-month field operational test
- **How:** Parties to maintain record log of all labor and direct costs to develop, operate, and maintain the system and its components (e.g. WWW page, kiosks, etc.) and anticipated and existing revenue sources (ARINC and ISPs)
- **Survey/Study Tool:** Cost model developed (in coordination with system developer- ARINC) (ARINC/SAIC)
- **Data Analysis:** Review and documentation of development costs (including associated costs or estimates of pre-developed products or services), operations costs, and system maintenance

costs for each specific ATIS program/market and revenues used to define the future sustainability of the program following the FOT period (ARIC/SAIC)

- **Schedule:** Key activities:
 - Collect and document data (ongoing throughout 24-month field operational test)

Market Data

- **Goal/Hypotheses Tested:** Goal 1 also identifies several objectives related to marketability issues. These include the marketability for the ATIS program during the project period.
- **Target Group:** System developer (ARINC) and partners (e.g. ISPs)
- **When:** Documentation of project marketing activities and results/findings from project start through end of 24-month field operational test
- **How:** Record-keeping/documentation by system developer (ARINC)
 - Internal marketing surveys/studies (ARINC)
 - Users and consumer surveys on customer satisfaction (SAIC)
 - Market penetration indicator (ARINC)
- **Survey/Study Tool:** Marketing study/survey information (ARINC)
 - Users and consumers survey (SAIC)
- **Data Analysis:** Review of ARINC data for information on market penetration, marketability measures, sustainability measures, and other performance measures related to marketing issues (SAIC)
- **Schedule:** Conduct ongoing activities throughout study period, particularly following key enhancements to the system

System Performance Logs

- **Goal/Hypotheses Tested:** In goals 1 and 3, system performance issues are identified as system objectives.
- **Target Group:** ARINC and partners
- **When:** Logs maintained from date of initial system or component implementation through 24-month field operational test
- **How:** Performance logs (electronic format) maintained by system developer (ARINC) and by partners for specific components (ARINC)
- **Survey/Study Tool:** Log of performance measures (defined by ARINC and partners, e.g. downtime, speed, accuracy, etc.) maintained by system developer and/or partners (ARINC)
- **Data Analysis:** Statistical comparison of performance measures to industry standards (SAIC/ARINC)
- **Schedule:** Conduct ongoing reviews from date of initial system or component implementation through 24-month field operational test

Surveys- Users

- **Goal/Hypotheses Tested:** A key component to the evaluation will be information collected from users of the specific programs to satisfy goals 3 and 4 of the evaluation goals.
- **Target Group:** (A) WWW page users
- (B) Kiosk users
- (C) Other devices' users (based on program expansion)
- **When:** (1) Approximately 1 month following implementation and (2) approximately one year following initial survey period

- **How:** (A) WWW on-line (voluntary) survey of WWW users (maintained by system developer and/or partners); sample size- 300 per site/location or 2-month survey period, whichever is attained first (ARINC/SAIC)
 - (B) On-site survey of kiosk users; sample size- 300 per site or 10 % of users, whichever is attained first (SAIC)
 - (C) Dependent on device type; may be on-site, WWW page, mail-back survey, or other type survey; sample size would follow criteria shown above for other types of surveys (SAIC)
- **Survey/Study Tool:** The survey will consist of a 10- 15 question design oriented to the customer satisfaction issues addressed under Goals 3 and 4 (including the value/worth of the services) of the evaluation and to the “perceived benefit” issue under Goal I. Items to be addressed in the survey include:
 - Reason for use of service
 - Trip purpose
 - Trip length (origin/destination)
 - Level of awareness of TIS sources
 - Frequency of use of service
 - Perceived impact or benefits of services
 - Perceived satisfaction of timeliness, reliability, comprehensiveness, and usefulness of service
 - Perceived value/worth of services

Additional demographic information (e.g. age, education, income level, gender, etc.) for analysis purposes will be added (SAIC).
- **Data Analysis:** Statistical analyses of responses (SAIC)
- **Schedule: Key** activities include:
 - Develop survey tool(s) for specific device types
 - Review survey tool(s) with system developers, partners, and I-95 CC
 - Implement survey tool(s)
 - Conduct initial survey period
 - Perform analyses of initial survey(s) period
 - Conduct second survey period
 - Perform analyses of second survey(s) period
 - Disseminate findings

Surveys/Interviews- Participating Agencies

- **Goal/Hypotheses Tested:** Planned to solicit inputs on the customer satisfaction goals (1,3, and 4) of the transportation agencies (i.e. MHD, ConnDOT and MTA) actively participating in the ATIS program by providing traveler information into the TravTIPS system
- **Target Group:** Agencies supplying traveler information into ATIS (ConnDOT, Mass Highway Dept., MTA)
- **When:** (1) Approximately 1 month following implementation and (2) approximately one year following initial survey period
- **How:** Face-to-face interviews with agency representatives (3 per agency) responsible for providing information to and receiving information from the ATIS (SAIC)
- **Survey/Study Tool:** This survey/interview will consist of 15-20 questions reflecting the issues related to the four goals and objectives of the project plus opportunity for anecdotal input. Specific items covered during the survey/interview include:
 - Level of information provided to system

- Satisfaction with procedures to supply information to system
- Staffing and resource requirements associated with providing information to system
- Perceived changes to operation with TravTIPS
- Perceived benefits received from TravTIPS data
- Level of information provided from system
- Satisfaction with procedures and formats of information provided from system
- Satisfaction with reliability, timeliness, comprehensiveness, and usefulness of information received from TravTIPS
- Perceived value/worth of information received from TravTIPS
- Perceived improvements in transportation afforded with TravTIPS information

This plan will allow for assessment of changes in perceptions over the time and maturity of the ATIS project (SAIC)

- **Data Analysis:** Summary of response findings (SAIC)
- **Schedule:** Early, 1999 and early, 2000

Focus Groups (if used)

- **Goal/Hypotheses Tested:** The use of a focus group may be made to assess this program's meeting of the customer satisfaction issues of Goal 3 and 4 and the benefit issues of Goal 1.
- **Target Group:** Members of Corporate Services being provided ATIS
- **When:** Approx. 2-3 months following implementation and operation of service (in coordination with system developer- ARINC)
- **How:** Focus group meeting of 6-8 users of the system for a single corporate services group (SAIC)
- **Survey/Study Tool:** Focus group agenda setting in coordination with the system developer. The focus group will be used to assess the ATIS' meeting of the customer satisfaction issues of Goal 3 and 4 and the benefit issues of Goal 1. The key issues relative to the specific program for the corporate customer will be outlined and discussed and the viewpoints of the representatives (voluntary) obtained (SAIC). Specific items to be covered may include:
 - Use of information
 - Satisfaction with format and presentation of information
 - Satisfaction with reliability, timeliness, comprehensiveness, and usefulness of information
 - Perceived impact/benefit of the information
 - Need for enhancements to information/service
 - Perceived value/worth of the services
- **Data Analysis:** Summary of response findings (SAIC)
- **Schedule:** Approximately 2-3 months following implementation and operation of the corporate service

Management Plan

The organization and responsibilities of the evaluation project team are presented herein. The SAIC Team will lead the evaluation effort with major input in the areas of market research, public-private partnership models and assessment, and cost studies from the system developer-ARINC. On a specific study basis, the following responsibilities are anticipated:

Study	Responsible Team
Surveys	SAIC
Focus Groups	SAIC
Case Study	ARINC (Information) SAIC (Review)
Cost/Sustainability Review	ARINC (Data) SAIC (Review)
Market Data	ARINC (Data and Analysis SAIC (Review)
System Performance Logs	ARInC/SAIC

Approval of the final Evaluation Plan and the study reports will be the responsibility of the I-95 Corridor Coalition and the FHWA.

Schedule

The schedule for several of the individual studies is based on the implementation dates of the specific program. Currently, these dates are still changing as the technology and system warrants. As a result, the schedule will be dynamic as the program evolves. All tech memos will be submitted within one month from the completion of the data collection for the specific study. Other project deliverables will be prepared and delivered in concert with the table above. The current schedule for the Final Evaluation Report is planned for August 3 1,200 1.

INTRODUCTION

The Boston-to-New York travel corridor is one of the busiest travel corridors in the country and, typical of such developed areas, is experiencing congestion and safety problems and other travel-related inefficiencies along its transportation systems. Currently, transportation agencies along the Corridor collect static and real-time transportation and travel information for their individual areas or regions. Access to this information on a corridor-wide basis is limited. As a result, the I-95 Corridor Coalition has sponsored a program to develop and maintain corridor-wide traveler information along this Corridor. This program, known as the I-95 CC ATIS project, will be aimed at enhancing the accuracy, timeliness, and availability of traffic and travel information within and through the Boston- New York Corridor.

The I-95 CC ATIS project (FOT #4) is a field operational test to collect, process, and disseminate traveler information to interregional travelers corridor-wide between the New York and Boston regions along the I-95 Northeast Corridor. Initial traveler information services will be deployed in the first year of the project start and will operate over an additional 24-month period. Added traveler information services will be built in during the operational test to build a sustaining business for continued operation of the system at the conclusion of the test program.

The purpose of the ATIS program is to:

- Deliver an interregional corridor-wide ATIS for consumers traveling between New York and Boston,
- Integrate area Intelligent Transportation Systems,
- Provide white-boarding and e-mail conferencing to further coordinate communications among Traffic Management Centers,
- Support Traffic Management Centers within and between cities,
- Promote development of inter-jurisdictional, interagency coordination for metropolitan and regional traffic, emergency, and incident management, and
- Obtain traveler information data from other sources (including the Information Exchange Network (IEN)) and provide access to the data in graphics form via web browsers.

The purpose of this report is to document the evaluation plan aimed at assessing the program's effectiveness in meeting the project goals and objectives.

I. ATIS EVALUATION GOALS AND OBJECTIVES

The overall purpose of the I-95 CC ATIS program is to enhance the quality, quantity, and availability of timely, accurate traffic, travel, schedule, and other information among transportation operations and management agencies and authorities, to the media, and to the public. This program will permit more effective and coordinated management of transportation services throughout the Region and more informed travelers who can then make better travel decisions. Providing additional travel-related information will help mitigate safety and congestion problems in the Region without expanding the current transportation infrastructure.

As a key step in the development of an evaluation plan for this program, definition of the goals and objectives to drive the program are needed. This effort was initiated by the I-95 ATIS Committee (which is comprised of key members of the I-95 Corridor Coalition). Oftentimes, these goals and objectives are derived from the initial purpose of the operational test itself. However, specific evaluation goals, independent of the initial purpose, may also be derived. With

this in mind, the I-95 CC ATIS Committee and the SAIC Team met and discussed the I-95 CC ATIS program and outlined a set of evaluation goals and objectives. These goals and objectives were derived from the initial operational test goals and objectives stated as follows:

- Does the I-95 CC ATIS provide useful traffic and travel related information to interregional travelers within the study area?
- Is the information being used by the end user to make informed travel decisions?
- Has the Coalition's understanding of the feasibility of public-private collaboration in providing ATIS services been enhanced?
- Is there a business case for sustaining these services at minimum public cost and a rate of return investment for private partners?

The following evaluation goals and objectives were outlined.

Goal #1: To Define the Marketability and Sustainability of the ATIS Program on a Regional Basis.

- To identify the marketability and sustainability of the ATIS program overall and by device type, user, and free vs. fee-based service.
- To define the benefits of the ATIS program to the ATIS industry/transportation community.
- To define the benefits of the ATIS program to the users.
- To define the perceived benefits of the ATIS program to the participating agencies.
- To improve transportation service by the participating agencies using the information from the service.
- To improve customer satisfaction by the participating agencies in the processes of providing to and obtaining information from the services.
- To document or estimate the relevant costs associated with the ATIS program.

Goal #2: To enhance the understanding of the process to develop and maintain public-private partnerships.

- To document the steps and processes, institutional issues, successes and failures, and a model for public-private and private-private partnerships during the development of the ATIS program.
- To refine the public-private partnership model.

Goal #3: To utilize the traveler information to make informed travel decisions.

- To guide travelers to more efficient modes of travel.
- To guide travelers to more efficient travel paths between origin and destination.
- To guide travelers to more efficient time periods to conduct specific trips.
- To increase flexibility in travel options by travelers.
- To define and enhance the value/worth of the traveler information by users, device type/source, and free vs. fee-based services.

Goal #4: To provide useful traffic and travel-related information to interregional travelers and other users within the study area.

- To provide reliable, timely, comprehensive, user-friendly multi-modal traveler information to its users (by type of device and free vs. fee-based service).

The purpose of the proposed evaluation plan will be to ensure that an assessment of the effectiveness of the ATIS program in achieving these goals and objectives is achieved within the resource limits of the evaluation activity.

II. PLANNED ATIS PROGRAM

The I-95 CC ATIS program is aimed at achieving benefits for both the public and private sector. It will provide users with both static and dynamic information for all major modes of transportation available along the Corridor. For public sector agency partners (Massachusetts Highway Department (MHD), Massachusetts Turnpike Authority (MTA), and the Connecticut Department of Transportation), the agencies will have the ability to receive fused, expanded, multi-modal, travel information to support interagency and interregional traffic and incident management. This information will be provided in exchange for providing access to their agencies' traffic data (e.g. incident data; volume, speed, and occupancy information; construction and maintenance activities; transit schedule, fare, and stop information). In addition, the TravTIPS network and workstation software will provide a whiteboard and E-mail capability to support interagency coordination.

For the private sector, the ATIS program will provide at least three primary services for the Region. The services are:

- Multi-mode travel information on a WWW page disseminated via the Internet (scheduled for beta-test in January, 1999);
- Multi-mode travel information and trip planning services with limited personalization (and fee-related) disseminated via kiosks in South Station (Boston) and Penn Station (New York)- (planned for early 1999); and
- Multi-mode travel information and trip planning services with full personalization disseminated via the Internet to at least one Corporate Customer (planned for 1999).

Private sources, such as: ETAK, METRO Networks, AMTRAK, and ARINC will supplement and provide traveler information on the major modes of transportation (e.g. rail and airline travel) as well as congestion and incident data where available. The services will be available with any commercially available web browser and an Internet connection from the home, office, and, potentially, public facilities such as libraries and schools. Added services will be provided in the future based on the economic viability of the services to both the public and private partners.

TravTIPS Architecture

The TravTIPS architecture will be comprised of the following subsystems:

- **Data Collection:** This subsystem consists of the software at the central facility needed to translate the information from the public and private data sources as well as the Information Service Providers (ISPs) into the internal TravTIPS database format. It also includes the network equipment that will be installed at the ISP site(s).
- **Central Processing and Storage:** This subsystem consists of the web servers, firewalls routers, and frame relay equipment needed to host TravTIPS applications. In the future, dedicated back-end machines will be provided to host special purpose processing such as traffic flow prediction.
- **Network:** This network consists of the leased T-1 circuits and frame relay services provided by the common carrier.

- **Customer Services:** This subsystem is planned to consist of the following capabilities, at a minimum, for each of the services:
 - Corporate Services: This equipment consists of the routers located at the customer sites to provide an interface to the TravTIPS intranet.
 - Public Agency Services: This equipment consists of the communications equipment needed to provide an interface to the TravTIPS intranet.
 - Kiosks: This equipment will consist of a dual terminal configuration that will be capable of accepting a credit or debit card for payment of services, such as Internet access, that are over and above those provided by TravTIPS.
 - Wireless Services: This equipment consists of the software required to generate a data feed to the FM subcarrier system and the FM subcarrier modulator devices.

A conceptual view of the TravTIPS communication system architecture for the I-95 CC ATIS is shown in Figure 1. The logical architecture is displayed in Figure 2. In summary, multi-modal traveler information will be received from the public and private sources into the central processing system. The data will be fused, stored, and made available on various ATIS servers and the intranet for dissemination to the public agency partners, ISP services (via Internet), and other non-fee based (free) services available as part of the initial traveler information services.

Service Descriptions

The ATIS program being developed and the plans for information dissemination include:

- **Internet:** ARINC will host single access service for multi-mode local and regional travel information for the Boston and New York areas and major highways between the two cities. The TravTIPS web page will present near-real-time assessments of traveler conditions via color-coded maps. Transit schedules and fares, rail schedules and fares, and flight status and gate assignments will be available via the Internet. Dynamic traffic predictions will be added as a service enhancement during the second software build, based on the availability of quantitative information from selected roadways.
- **Radio/ Interactive TV Broadcast:** This dissemination is a continuation of ETAK's current radio broadcast and cable TV business. ETAK and Metro Networks, key project private partners, will have access to more complete travel information for the region, enhancing the level of service and information quality to I-95 consumers. Additionally, Metro Networks and ETAK will launch an interactive cable TV channel within the New York and Boston metropolitan areas.
- **Kiosks:** Kiosk stations, two kiosks per station, are proposed to be installed at South Station (Boston) and at Penn Station (New York City). These stations will provide single access to multi-mode traveler information including metro, regional, and interregional traffic, transit routes, station locations and schedules, flight information, and rail specific to the New York and Boston metropolitan areas. The kiosk station customer will receive all information available from the Internet web page. In addition, limited personalization for the consumer to query the information requested to streamline the "search" and provide more timely information for the consumers' particular travel needs will be provided. The kiosks will also provide, for a fee, access to the Internet for key traveler information beyond the project's basic web page.

RIN

NOTE 128K Circuits Could be Either 56K or 128K
10 Base T or Token Ring on Customer Side of Router

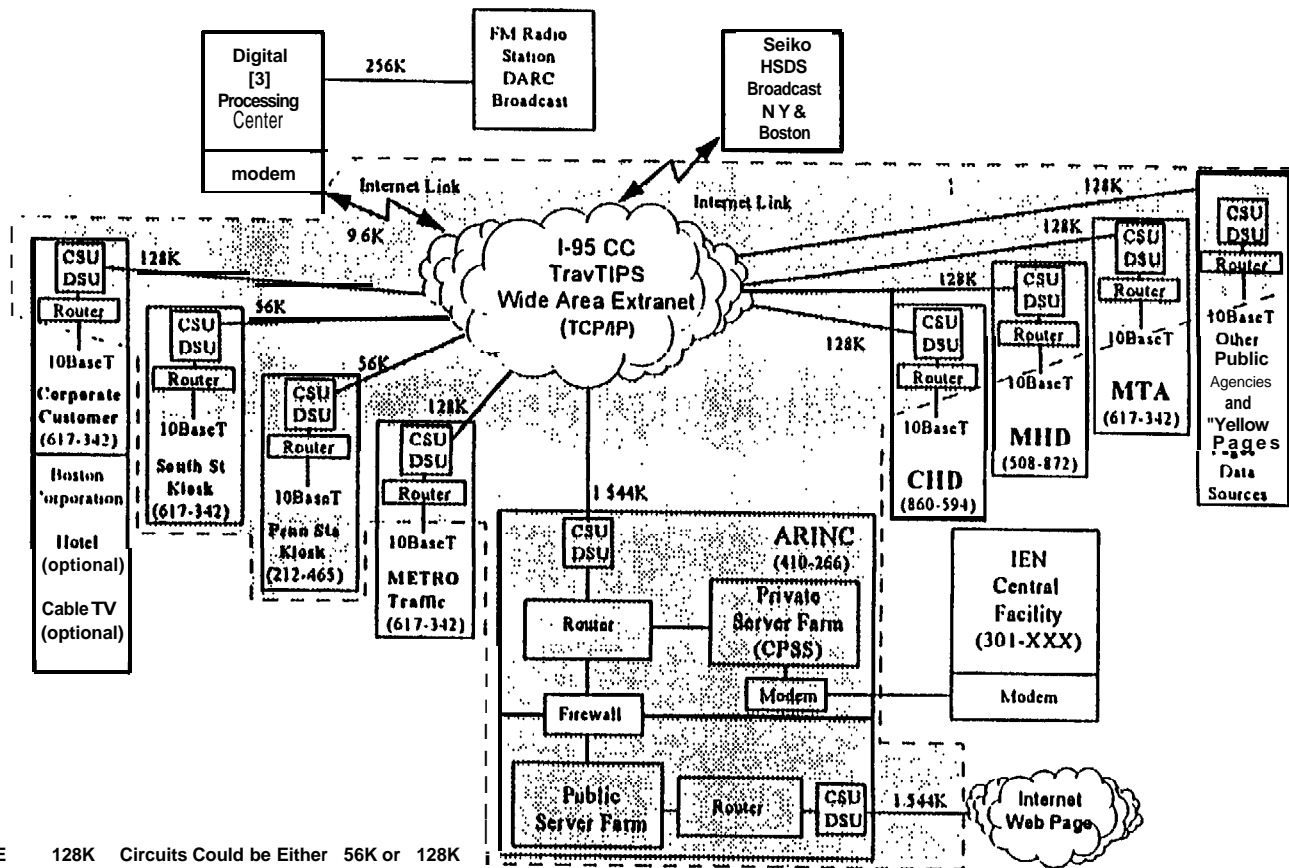


Figure 1: *TravTIPS*^(TM)

Communications Architecture for I-95 CC ATIS

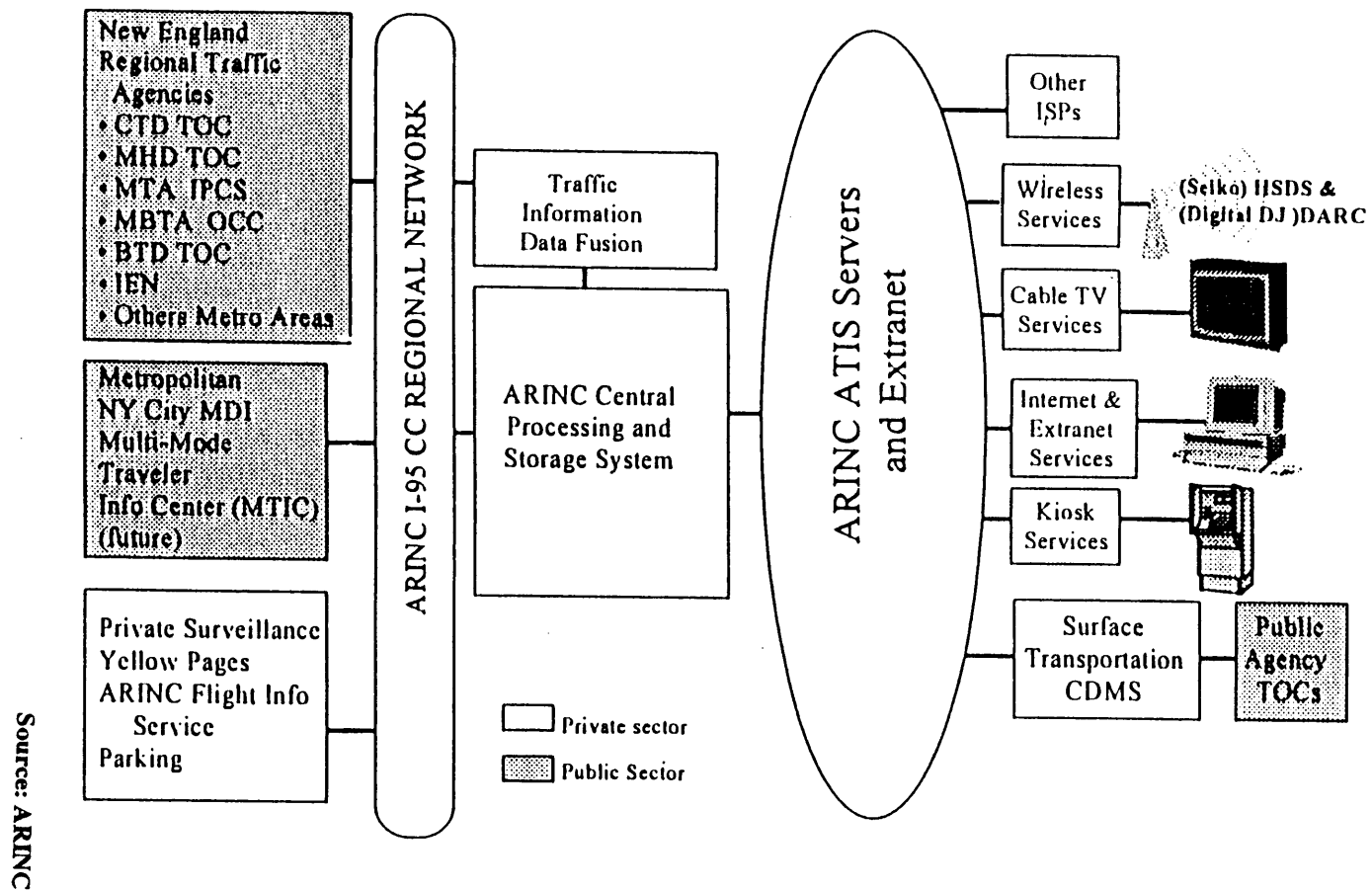


Figure 2. **TravTIPSTM** Logical Architecture for I-95 CC ATIS

- **Intranet/ Corporate Services:** A personalized traveler information service (for fee) to corporate customers via the intranet will be provided. Personalized features will include: specific mode information inquiries, traveler parameter files, and exception messaging. All aspects of the Internet web page will be available to the corporate user as well. A specific corporate partner will participate in this service.
- **Integrated Transportation - Making Service:** This service supports intra- and interregional traffic management and provides the capability for interagency and interregional collaboration between the MHD TOC, the MTA Integrated Project Control System, and the Connecticut DOT TOC. The service will support a field test of virtual traffic information control center (TICC) concept. The public agency partners will be connected via a high-speed intranet and will have the capability to conduct interregional, interagency, and local traffic operations from their desktops. The service will provide “point and click” visuals of traffic, incident, and construction information on area, regional, and interregional maps and white board and E-mail tools to support interagency collaboration.

The scope of the program is intended to be dynamic as the needs of the Corridor and the “attractiveness” of traveler information services expands. Major enhancements, as the ATIS program expands, are envisioned. These enhancements may require ongoing evaluation to assess the impacts to the transportation community. Examples of future enhancements may include: extension of system coverage to the I-95 Corridor south of the New York area; dynamic, real-time monitoring of all transit and para-transit vehicles; addition of traffic flow prediction capabilities; and enhanced comparison of alternative travel and mode choices. The growth of these programs will be based on the demands of its users and the technological advancements within the transportation industry.

III. PRELIMINARY EVALUATION STRATEGY

The preliminary evaluation strategy was driven by the I-95 ATIS Committee’s Team-led goals and objectives of the project and evaluation. For each of the goals and objectives, statements of hypotheses were identified. These statements represented specific issues or criteria to be evaluated in assessing the effectiveness of the program in meeting the established goals and objectives. To aid in describing the hypotheses, specific evaluation measures or measures of effectiveness (MOE) are defined. These are the measures that will be investigated to test the hypotheses.

Preliminary Strategy

The preliminary strategy, organized by evaluation goal and objective, is displayed in Table 1. This strategy was developed as a result of several meetings and discussions among the I-95 ATIS Committee and SAIC Evaluation Team members. Each evaluation/FGM study includes the list of objectives, hypotheses, and measures of effectiveness. For each hypothesis and measure, the proposed data sources and data requirements and analysis methods are outlined. The studies are proposed for conduct at several stages in the evaluation program to evaluate the specific programs under several levels of maturity and development. In addition, since specific programs are planned for implementation at different times (e.g. beta form of WWW page planned for January, 1999 while the kiosk program is proposed for early, 1999) during the overall project, the timing of the studies for specific programs will vary during the study period.

Table 1. Preliminary Evaluation Strategy and Hypotheses (contd.)

Goal #1: To define the marketability and sustainability of the ATIS program on a regional basis.

<u>Objective</u>	<u>Hypothesis</u>	<u>MOE</u>	<u>Data Source/ Req.</u>	<u>Analysis</u>
To identify the marketability and sustainability of the ATIS program.	.The ATIS services will generate sufficient user interest to make their continued use viable and sustainable.	Level of market penetration by product/program User perception on program benefits Market growth over time	Market data by system developers . System cost data User on-site surveys - 10 % sample/period . On-line surveys (W W W-voluntary) Focus group/Corporate group	Analysis of marketability measures of program Documentation and statistical comparison of survey/interview findings
	.The revenues collected from the fees and other sources will be sufficient to cover operations costs.	-Revenue estimates for TIS programs .System Operations cost estimates .Level of market penetration by TIS product	.Market data by system developers .Cost data and revenue estimates from system developers	.Analysis of rate of return and cost-effectiveness measures of program
To define the benefits of the ATIS program to the ATIS industry/transportation community.	.The regional ATIS and its development will provide added benefits to ATIS programs and their development.	.Value-added service (e.g. standardization of data formats, etc.) developed by program Key findings/issues/products/services with program development .Industry/transportation community perception on program benefits	.Market data by system developers .System documentation by system developers .Interviews with officials in transportation community and industry	.Documentation of benefits and value-added services .Documentation of case study on industry benefits

Table 1. Preliminary Evaluation Strategy and Hypotheses (contd.)

Goal#1: To define the marketability and sustainability of the ATIS program on a regional basis (conttl.).

<u>Objective</u>	<u>Hypothesis</u>	<u>MOE</u>	<u>Data Source/ Req.</u>	<u>Analysis</u>
To define the perceived benefits of ATIS to its users.	Users will find the ATIS program and services to be a valuable aid for their travel planning purposes.	.Perceived travel time savings .User perception on program benefits .User willingness-to-pay for TIS products	.User on-site surveys - 10 % sample/period .On-line surveys (WWW-voluntary> .Focus group/Corporate group	.Documentation and statistical comparison of survey/interview findings
.To define the perceived benefits of the ATIS program and services to the participating agencies.	Agencies will find the ATIS program and services to be valuable for their purposes.	Agency perception on program benefits	Agency interviews/survey of key staff from participating agencies	.Documentation and statistical comparison of survey/interview findings
To improve transportation service by the participating agencies using information from the TIS	.The TIS information supplied to participating agencies will improve transportation service for the agency & highway community.	Users and agencies' perception on impact of TIS-provided info. on transportation service	Agency interviews/survey of key staff from participating agencies	.Documentation and statistical comparison of survey/interview findings
To provide & maintain functional processes in providing to and obtaining information from the TIS by participating agencies.	.The information & procedures in providing TIS information to & from the participating agencies meets the expect of agencies	Agencies perception on efficiency/effectiveness of procedures	Agency interviews/survey of key staff from participating agencies Performance logs	.Documentation and statistical comparison of survey/interview findings
To document or estimate the relevant costs associated with the specific TIS programs.	.The costs of the TIS program(s) and elements will be useful information to other parties.	System development and operation costs by element of the program(s)	.Cost (development, O & M. and pre-existing/pre-developed) data from system developer and I-95 CC .Research on other programs nationwide	.Definition of program costs by service & service level

Table 1. Preliminary Evaluation Strategy and Hypotheses (contd.)

Goal #2: To **enhance the understanding of the process to develop and maintain public-private partnerships.**

<u>Objective</u>	<u>Hypothesis</u>	<u>MOE</u>	<u>Data Source/ Req.</u>	<u>Analysis</u>
.To document the steps and processes, institutional issues, successes & failures, and the model for public-private and private-private partnership development	.The docum. of steps and processes, institutional issues, successes & failures, and the model for public-private and private-private partnership is valuable.	.Development steps, institutional issues, successes & failures and business model	.Case study w/ interviews of key staff from agencies & private partners .Review of meeting minutes	.Documentation of findings and lessons learned
.To refine the P-P/P model	.The docum. of a recommended P-P/P business model is valuable.	.P-P/P business model	.Case study w/ interviews of key staff from agencies & private partners *Review of meeting minutes .Team critique	.Documentation of findings and analysis of preferred model

Table 1. Preliminary Evaluation Strategy and Hypotheses (contd.)

Goal #3: To effectively utilize the traveler information to make informed travel decisions

<u>Objective</u>	<u>Hypothesis</u>	MOE	<u>Data Source/ Req.</u>	
To guide travelers/users to more efficient modes of travel, travel paths, and travel periods.	.The TIS will divert travelers/user to more efficient modes of travel, travel paths, and travel periods (by user type, dissemination means, and free vs. fee-based services).	.Users' perception of travel behavior impacts	.User on-site surveys - 10 % sample/period .On-line surveys (WWW-voluntary) .Focus group/Corporate group	.Documentation and statistical comparison of survey/interview findings
To provide travelers/users with flexible travel options	.The TIS will provide multi-modal travel options that will impact travel behavior.	.Users' perception of travel behavior impacts	.User on-site surveys - 10 % sample/period .On-line surveys (WWW-voluntary) .Focus group/Corporate group	.Documentation and statistical comparison of survey/interview findings
To define and enhance the value & worth of the traveler information to users	.The TIS will have added value/worth to users (over existing sources)- by user type, dissemination means, and free vs. fee-based services.	.Users perception of value/worth of the traveler information & services	.User on-site surveys - 10 % sample/period .On-line surveys (WWW-voluntary) .Focus group/Corporate group	.Documentation and statistical comparison of survey/interview findings

Table 1. Preliminary Evaluation Strategy and Hypotheses

Goal #1: To provide useful traffic and travel-related information to interregional travelers and other users within the study area.

<u>Objective</u>	<u>Hypothesis</u>	<u>MOE</u>	<u>Data Source/ Req.</u>	<u>Analysis</u>
.To provide reliable, timely, comprehensive, user-friendly multi-modal traveler information to its users.	.The TIS will provide reliable, timely, comprehensive, and usable traveler information to its users (by user type/mode, dissemination means, and free vs. fee-based services).	.Users' perception of reliability, timeliness, comprehensiveness, and usefulness/benefits of services	.User on-site surveys - 10 % sample/period .On-line surveys (WWW-voluntary) *Focus group/Corporate group	.Documentation and statistical comparison of survey/interview findings

To evaluate the overall ATIS service, a number of specific studies are proposed. They are proposed by FGMs and by specific program being tested. The following overview presents the key aspects of these studies.

Case Study (Public-Private Partnership)

Goals 1 and 2 of the evaluation goals is directed towards defining an effective public-private partnership (PP/P) model for ATIS projects. To achieve this goal and its objectives, a case study will be conducted to define a proposed model for building the PP/P for ATIS and to enhance the I-95 CC's understanding of public and private collaboration. The case study will commence with the ARINC business model proposed initially for the project and will refine and re-define the model based on the documented successes and failures of the model and its implementation during the project, its marketability, and its sustainability. Questions answered from the test may include:

- Did the FOT implement partnerships?
- To what degree were the partnerships implemented (PP/P. ISP to ISP)?
- Did the FOT document to the I-95 CC issues and solutions to the development of these collaboration efforts?

The review of past meeting minutes and other documents outlining the project steps will be made. In addition, interviews with both public and private partners will be conducted to solicit further inputs into the model and its success. For each issue, documentation will include: the issue and potential impacts, feasible options advantages/disadvantages, recommended option/action and how it was handled, statement of lessons learned, evolution path of relationships, and changes in the program over time. The final product will be a recommended business model and the documented case study identifying the processes and steps (including lessons learned) in implementing the recommended model.

Cost Sustainability Review

Goal 1 of the evaluation objectives highlights the cost-related, marketability and sustainability objectives. From record logs, invoices, and other sources provided by the system developers, an account and statement of project-related costs and anticipated revenues (or a reliable indicator) for the ATIS program will be defined. The primary purpose will be to describe the sustainability of the venture at the end of the FOT period and to outline the sustainability for the future exercise of the program. Key items in the review will include: development costs (including associated costs or estimates of pre-developed products or services), operations costs, system maintenance costs and existing/anticipated revenues (or indicators). The costs will identify labor, direct costs, and other related costs to effectively define the costs to develop, operate, and maintain each specific ATIS program.

Market Data

Goal 1 also identifies several objectives related to marketability issues. These include the marketability for the ATIS program during the project period. It is expected that the information will be provided by the system developer as part of maintaining their business program. Supplemental information to this effort may include: the results from other relevant TIS studies, the existing I-95 ITS marketability study results (e.g. I-95 CC Project No. 6: User Needs and Marketability), and the findings from the surveys described in this section. Review of the findings

(and additional analysis, if required) will be conducted by the SAIC Team to assure it meets the project's evaluation goals.

System Performance Logs

In goals 1 and 3, system performance issues are identified as system objectives. To document the system performance, logs identifying the status of the system's operation will be maintained by the operators. These operators will consist of the following: participating transportation agencies providing information to and receiving information from the TravTIPS system, the TravTIPS operators themselves and program operators (e.g. kiosk maintenance operators, corporate services' operators, etc.). The operators will provide a log record noting: program status, time frame of any downtime, cause of any downtime, and other key issues. The operators will be requested to maintain the logs from the commencement of their involvement in the project till the completion of the 24-month field operational test period. In addition to serving as a measure of system performance for study objectives, the system performance data will be useful in explaining or defining other key findings from other studies conducted for the evaluation.

Surveys

A key component to the evaluation will be information collected from users of the specific programs to satisfy goals 3 and 4 of the evaluation goals. A number of survey tools are proposed to test these goals and objectives. Initially, the WWW page format will be the primary source for the "free" corridor-wide traveler information services. Over time, it is anticipated that the service will be available in a variety of formats and will provide additional services on a "fee basis". It is proposed that a voluntary on-line survey be provided with each format for the "free" service ("fee-based" services to be addressed later). The "voluntary" approach is intended to maintain the level of the traveler information service originally intended and to solicit input only from those parties desiring to contribute to the evaluation. It should be noted, however, that response rates to web surveys, in general, have typically been low.

The survey will consist of a 10- 15 question design oriented to the customer satisfaction issues addressed under Goals 3 and 4 (including the value/worth of the services) of the evaluation and to the "perceived benefit" issue under Goal 1. Items to be addressed in the survey will include:

- Reason for use of service
- Trip purpose
- Trip length (origin/destination)
- Level of awareness of TIS sources
- Frequency of use of service
- Perceived impact or benefits of services
- Perceived satisfaction of timeliness, reliability, comprehensiveness, and usefulness of service
- Perceived value/worth of services

Additional demographic information (e.g. age, education, income level, gender, etc.) for analysis purposes will be added. The surveys will run from approximately one month following implementation of the program for a two-week period. Depending on response rates, the survey period may be extended.

The kiosk program will provide an additional key source of traveler information. As noted earlier, two locations are proposed for this program: Penn Station in New York and South Station in Boston. To obtain the necessary evaluation data, on-site surveys/interviews of the service will be

conducted on a sample of kiosk users. A ten percent sample is assumed (This sample size may vary depending upon the actual number of users of the program.). The survey will be similar to the one developed for the WWW page program and, similarly, will be aimed at the customer satisfaction issues of Goals 3 and 4 (including the value/worth of the services) and the benefit issue of Goal 1. The survey period will run from approximately one month following implementation (anticipated for early, 1999) of the program for approximately a one-week period to obtain a desired sample size (dependent on number of kiosk users). The surveys will be conducted during the hours from 6:00 AM thru 8:00 PM on weekdays and a weekend to depict daily differences.

Agency surveys/interviews are planned to solicit inputs on the customer satisfaction issues of the transportation agencies (i.e. MHD, ConnDOT and MTA) actively participating in the ATIS program by providing traveler information into the TravTIPS system. These surveys/interviews will be designed as a rather extensive interview consisting of 15-20 questions reflecting the issues related to the four goals and objectives of the project plus opportunity for anecdotal input. Specific items covered during the survey/interview will include:

- Level of information provided to system
- Satisfaction with procedures to supply information to system
- Staffing and resource requirements associated with providing information to system
- Perceived changes to operation with TravTIPS
- Perceived benefits received from TravTIPS data
- Level of information provided from system
- Satisfaction with procedures and formats of information provided from system
- Satisfaction with reliability, timeliness, comprehensiveness, and usefulness of information received from TravTIPS
- Perceived value/worth of information received from TravTIPS
- Perceived improvements in transportation afforded with TravTIPS information

Interviews with the three key agencies will be conducted. At least three key staff involved in different stages of the program (e.g. staff member responsible for relaying traveler information to the system, senior level supervisor responsible for coordinating the effort, and staff member receiving the TravTIPS output for use by the agency) will be interviewed. The interviews will be conducted during several project periods: (1) approximately one month after the agencies have been providing information and (2) approximately one year later. This plan will allow for assessment of changes in perceptions over the time and maturity of the ATIS project.

Focus Groups

Traveler information services (fee-based) to corporate customers are planned to be in place in 1999 with at least one corporate customer. The use of a focus group may be made to assess this program's meeting of the customer satisfaction issues of Goal 3 and 4 and the benefit issues of Goal 1. Since the program and its activities have not been outlined by the system implementer at this time, it is feasible that an alternative evaluation tool may be exercised for testing the Corporate Services program. Where focus groups are warranted, the following plan will be used. In a group setting of 6-8 representatives, the key issues relative to the specific program for the corporate customer will be outlined and discussed and the viewpoints of the representatives (voluntary) obtained. Specific items to be covered may include:

- Use of information

- Satisfaction with format and presentation of information
- Satisfaction with reliability, timeliness, comprehensiveness, and usefulness of information
- Perceived impact/benefit of the information
- Need for enhancements to information/service
- Perceived value/worth of the services

The focus group meeting will be conducted approximately one month following implementation of the program and will typically last 2-3 hours to gain the required input. The attendees are selected from a list of volunteers from the corporate member and are based on obtaining a range of individual's backgrounds. Up to two corporate groups would be proposed for study during the project period. Additional Corporate groups could be studied should funds exist.

Additional Note

Due to the evolutionary nature of this ATIS program (with added or enhanced services or programs), continued refinement to the evaluation strategy will be required. The evaluation strategy presented herein presents a sound strategy given the state-of-the knowledge of the I-95 CC ATIS program at this time. As the program evolves, the strategy and evaluation plan should evolve over time and growth of the project.

IV. EVALUATION/TEST PLANS

The evaluation strategy presented in the previous section highlights the evaluation approach to meet the evaluation goals and objectives. Within this section, details are provided on the individual test plans planned for conduct in this effort. They are organized by specific study or issue planned for study.

Case Study (Public-Private Partnership)

- **Goal/Hypotheses Tested:** Goals 1 and 2 of the evaluation goals is directed towards defining an effective public-private partnership (PP/P) model for ATIS projects.
- **Target Group:** System developers (ARINC), I-95 CC, Participating transportation agencies supplying transportation information, and Project Partners (e.g. ISPs)
- **When:** Documentation of project activities from project start through end of 24-month field operational test period
- **How:** Documentation obtained from several sources:
 - Review of past and ongoing meeting minutes (SAIC)
 - Documentation of past key issues (ARINC)
 - Active participation in current and future meetings and documentation of key issues (SAIC w/ ARINC)
 - Surveys/interviews with project participants/target groups (SAIC)
 - Review of Business Model and updates/revisions (SAIC w/ ARINC)
- **Survey/Study Tool:** Information obtained from the following sources:
 - Initial Business Model proposed and used by system developer (ARINC)
 - Updates/revisions to Model (per ARINC input)

- Documentation of key issues- past and current (ARINC and SAIC)
- Survey/interview of system developer (ARINC), participating agencies, and partners on the documented successes and failures of the model and its implementation during the project, the marketability of the ATIS, and the sustainability of the ATIS
- **Data Analysis:** Documentation of findings and survey inputs on Public-Private Partnership issues (ARINC/SAIC)
- **Schedule:** Conduct ongoing activities throughout study period, particularly following key enhancements to the system

Cost/Sustainability Review

- **Goal/Hypotheses Tested:** Goal 1 of the evaluation objectives highlights the cost-related, marketability and sustainability objectives.
- **Target Group:** System developers (ARINC), I-95 CC, Participating transportation agencies supplying transportation information, and Project Partners (e.g. ISPs)
- **When:** Documentation of project costs and revenues (and sources) from project start through end of 24-month field operational test
- **How:** Parties to maintain record log of all labor and direct costs to develop, operate, and maintain the system and its components (e.g. WWW page, kiosks, etc.) and anticipated and existing revenue sources (ARINC and ISPs)
- **Survey/Study Tool:** Cost model developed (in coordination with system developer- ARINC) (ARINC/SAIC)
- **Data Analysis:** Review and documentation of development costs (including associated costs or estimates of pre-developed products or services), operations costs, and system maintenance costs for each specific ATIS program/market and revenues used to define the future sustainability of the program following the FOT period (ARINC/SAIC)
- **Schedule:** Key activities:
 - Collect and document data (ongoing throughout 24-month field operational test)

Market Data

- **Goal/Hypotheses Tested:** Goal 1 also identifies several objectives related to marketability issues. These include the marketability for the ATIS program during the project period.
- **Target Group:** System developer (ARINC) and partners (e.g. ISPs)
- **When:** Documentation of project marketing activities and results/findings from project start through end of 24-month field operational test
- **How:** Record-keeping/documentation by system developer (ARINC)

- Internal marketing surveys/studies (ARINC)
- Users and consumer surveys on customer satisfaction (SAIC)
- Market penetration indicator (ARINC)
- **Survey/Study Tool:** Marketing study/survey information (ARINC)
 - Users and consumers survey (SAIC)
- **Data Analysis:** Review of ARINC data for information on market penetration, marketability measures, sustainability measures, and other performance measures related to marketing issues (SAIC)
- **Schedule:** Conduct ongoing activities throughout study period, particularly following key enhancements to the system

System Performance Logs

- **Goal/Hypotheses Tested:** In goals 1 and 3, system performance issues are identified as system objectives.
- **Target Group:** ARINC and partners
- **When:** Logs maintained from date of initial system or component implementation through 24-month field operational test
- **How:** Performance logs (electronic format) maintained by system developer (ARINC) and by partners for specific components (ARINC)
- **Survey/Study Tool:** Log of performance measures (defined by ARINC and partners, e.g. downtime, speed, accuracy, etc.) maintained by system developer and/or partners (ARINC)
- **Data Analysis:** Statistical comparison of performance measures to industry standards (SAIC/ARINC)
- **Schedule:** Conduct ongoing reviews from date of initial system or component implementation through 24-month field operational test

Surveys- Users

- **Goal/Hypotheses Tested:** A key component to the evaluation will be information collected from users of the specific programs to satisfy goals 3 and 4 of the evaluation goals.
- **Target Group: (A) WWW** page users
- (B) Kiosk users
- (C) Other devices' users (based on program expansion)
- **When:** (1) Approximately 1 month following implementation and (2) approximately one year following initial survey period

- **How:** (A) WWW on-line (voluntary) survey of WWW users (maintained by system developer and/or partners): sample size- 300 per site/location or 2-month survey period, whichever is attained first (ARINC/SAIC)
 - (B) On-site survey of kiosk users; sample size- 300 per site or 10 % of users, whichever is attained first (SAIC)
 - (C) Dependent on device type; may be on-site, WWW page, mail-back survey, or other type survey; sample size would follow criteria shown above for other types of surveys (SAIC)
- **Survey/Study Tool:** The survey will consist of a 10-15 question design oriented to the customer satisfaction issues addressed under Goals 3 and 4 (including the value/worth of the services) of the evaluation and to the “perceived benefit” issue under Goal 1. items to be addressed in the survey include:
 - Reason for use of service
 - Trip purpose
 - Trip length (origin/destination)
 - Level of awareness of TIS sources
 - Frequency of use of service
 - Perceived impact or benefits of services
 - Perceived satisfaction of timeliness, reliability, comprehensiveness, and usefulness of service
 - Perceived value/worth of services

Additional demographic information (e.g. age, education, income level, gender, etc.) for analysis purposes will be added (SAIC).

- **Data Analysis:** Statistical analyses of responses (SAIC)
- **Schedule:** Key activities include:
 - Develop survey tool(s) for specific device types
 - Review survey tool(s) with system developers, partners, and I-95 CC
 - Implement survey tool(s)
 - Conduct initial survey period
 - Perform analyses of initial survey(s) period
 - Conduct second survey period
 - Perform analyses of second survey(s) period
 - Disseminate findings

Surveys/Interviews- Participating Agencies

- **Goal/Hypotheses Tested:** Planned to solicit inputs on the customer satisfaction goals (1,3, and 4) of the transportation agencies (i.e. MHD, ConnDOT and MTA) actively participating in the ATIS program by providing traveler information into the TravTIPS system
- **Target Group:** Agencies supplying traveler information into ATIS (ConnDOT, Mass Highway Dept., MTA)

- **When:** (1) Approximately 1 month following implementation and (2) approximately one year following initial survey period
- **How:** Face-to-face interviews with agency representatives (3 per agency) responsible for providing information to and receiving information from the ATIS (SAIC)
- **Survey/Study Tool:** This survey/interview will consist of 15-20 questions reflecting the issues related to the four goals and objectives of the project plus opportunity for anecdotal input. Specific items covered during the survey/interview include:
 - Level of information provided to system
 - Satisfaction with procedures to supply information to system
 - Staffing and resource requirements associated with providing information to system
 - Perceived changes to operation with TravTIPS
 - Perceived benefits received from TravTIPS data
 - Level of information provided from system
 - Satisfaction with procedures and formats of information provided from system
 - Satisfaction with reliability, timeliness, comprehensiveness, and usefulness of information received from TravTIPS
 - Perceived value/worth of information received from TravTIPS
 - Perceived improvements in transportation afforded with TravTIPS information

This plan will allow for assessment of changes in perceptions over the time and maturity of the ATIS project (SAIC)

- **Data Analysis:** Summary of response findings (SAIC)
- **Schedule:** Early, 1999 and early, 2000

Focus Groups (if used)

- **Goal/Hypotheses Tested:** The use of a focus group may be made to assess this program's meeting of the customer satisfaction issues of Goal 3 and 4 and the benefit issues of Goal 1.
- **Target Group:** Members of Corporate Services being provided ATIS
- **When:** Approx. 2-3 months following implementation and operation of service (in coordination with system developer- ARINC)
- **How:** Focus group meeting of 6-8 users of the system for a single corporate services group (SAIC)
- **Survey/Study Tool:** Focus group agenda setting in coordination with the system developer. The focus group will be used to assess the ATIS' meeting of the customer satisfaction issues of Goal 3 and 4 and the benefit issues of Goal 1. The key issues relative to the specific program for the corporate customer will be outlined and discussed and the viewpoints of the representatives (voluntary) obtained (SAIC). Specific items to be covered may include: